Sunshine, Earthshine and Climate

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Changes in the Earth's climate depend most basically on changes in the Sun's output, the Earth's reflectance and greenhouse gasses. Using SoHO helioseismic data, a meaningful lower limit is found on solar irradiance that implies the historical Sun can't be dimmer than the present Sun. Further, the global earthshine photometric data from BBSO are used, and connected to cloud data, to determine variations in the net sunlight reaching Earth. These suggest a significant decadal variation in the net sunlight reaching Earth. Spectroscopic earthshine data from Palomar and NASA's IRTF tell us about the evolution of global greenhouse gasses.